

Appl. No. 10/017,089
Request for Reconsideration dated March 17, 2004
Reply to Office Action of January 28, 2004

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Twice amended) [In combination with] A laser beam generating assembly comprising a coaxial laser resonator generating a circular sector shaped beam cross section with azimuthal polarization and an optical [system] beam reforming system through which the lower beam extends in a beam path [for reforming the laser beam generated by the laser resonator from a circular sector shaped beam cross section into a laser beam with a rectangular beam cross section, said beam issuing from the laser resonator being directed in a beam path through said optical system which includes] including a mirror with a reflective surface shaped in the form of a circular sector of a parabolic rotational body, said beam reforming system reforming the circular sector shaped laser beam into one having a rectangular cross section with linear polarization.

2. (twice amended) The coaxial laser beam[reforming system] generating assembly in accordance with Claim 1, wherein said reflective surface is the convex or concave surface of a parabolic rotational body.

3. (twice amended) The coaxial laser beam [reforming system] generating assembly in accordance with Claim 2, wherein such parabolic rotational body is in the form of a rotational paraboloid.

4. (twice amended) The coaxial laser beam [reforming system] generating assembly as in accordance with Claim 2, wherein said optical system includes a filter positioned in the line focus of the circular sector of the parabolic rotational body.

5. (twice amended) The coaxial laser beam [reforming system] generating assembly as in accordance with Claim 3, wherein said optical beam reforming system includes a filter positioned in the point focus of the circular sector of the rotational paraboloid.

6. (twice amended) The coaxial laser beam [reforming system] generating assembly in accordance with Claim 1, wherein said optical system includes an optical element interposed in the beam path after the beam has been reformed by said mirror, said optical element having at least one surface serving to reform the laser beam in two mutually perpendicular directions.

7. (twice amended) The coaxial laser beam [reforming system] generating assembly in accordance with Claim 6, wherein said optical element is a bifocal lens.

8. (twice amended) The coaxial laser beam [reforming system] generating assembly in accordance with Claim 6, wherein said optical element consists of several components.

9. (twice amended) The coaxial laser beam [reforming system] generating assembly in accordance with Claim 8, in which said components of said optical element comprise a cylindrical lens and at least one parabolic cylindrical mirror.

10. (twice amended) In combination,

(a) a coaxial laser resonator with an annular discharge chamber and a circular sector shaped output opening generating a laser beam with a circular sector shaped beam cross section and azimuthal polarization; and

(b) [a] an optical beam reforming system providing a beam path therethrough and including a mirror with a reflective surface shaped in the form of a circular sector of a parabolic rotational body, said optical system reforming the laser beam into a laser beam with a rectangular beam cross section and linear polarization.

11. (twice amended) The combination of a laser resonator and optical beam reforming system in accordance with Claim 10 wherein said circular sector of said parabolic rotational body is coaxially aligned with the circular sector axis of the laser beam incident thereon.

12. (currently amended) The combination of a laser resonator and optical beam reforming system in accordance with Claim 10 wherein said reflective surface is the convex or concave surface of a parabolic rotational body, and wherein such parabolic rotational body is in the form of a rotational paraboloid.

13. (currently amended) The combination of a laser resonator and optical beam resonator system in accordance with Claim 10 wherein said optical system includes an optical element interposed in the beam path after the beam has been reformed by said mirror, said optical element having at least one surface serving to reform the laser beam in two mutually perpendicular directions.

14. (currently amended) The combination of a laser resonator and optical beam resonator system in accordance with Claim 13 wherein said optical element is a bifocal lens.

15. (currently amended) The combination of a laser resonator and optical beam resonator system in accordance with Claim 13 wherein said optical element consists of several components.

16. (currently amended) The combination of a laser resonator and optical beam resonator system in accordance with Claim 13 in which said components of said optical element comprise a cylindrical lens and at least one parabolic cylindrical mirror.

17. (currently amended) The combination of a laser resonator and optical beam resonator system in accordance with Claim 10 wherein said optical system includes a filter positioned in the line focus of the circular sector of the parabolic rotational body.

18. (currently amended) The combination of a laser resonator and optical beam resonator system in accordance with Claim 10 wherein said optical system includes a filter positioned in the point focus of the circular sector of the rotational paraboloid.